

*This was one of the very early articles relating to electric railways. It was written by me for publication in The Railroader, when I was one of Mr. Edison's assistants, at Menlo Park, N.J. It has figured in patent law suits as an anticipation of claims by later inventors to idea of lighting the cars and stations, and propelling the cars, by electricity - from a common source of supply.*

THE RAILROADER.

Edison's Locomotive

*Chas. F. Leach,*

Nov. 1880.

*March 9, 1903,*

A Description from Headquarters.

(Published at ).

Menlo Park, N.J., October 11, 1880.

To the Editor of the Railroader:

According to my promise in a former letter, I give a few statements in regard to Mr. Edison's locomotive and the electric railway system. The locomotive which you illustrate is of course one constructed solely for experimental purposes. It consists of a large electro-magnet with armature free to revolve between the poles, and is similar to the machines which Mr. Edison employs for producing current. It is mounted horizontally on a four-wheel truck, the wheels having the hub insulated from the tire. As it is essential to economy that the armature be made to revolve at very high speed, it is not connected direct to the axle of the wheels, but the speed in this experimental locomotive was reduced by belts and pulleys. The track, 3 ft. 6 in. gauge, and half a mile long, was constructed on the natural surface with very little ballast, and with curves of 200 feet radius, on grades of 1 in 40. This locomotive depends for power upon the electric current which was, in the experiments, taken from the rails, they forming, with the armature on the engine and connecting wires, a complete circuit to the generator of the current.

It is well known that there is of necessity a loss in converting power into electricity; also, by resistance to the passage of



the current along the rails, which is lost as heat; and again a loss from leakage and in re-converting the electricity into work applied to draw the engine and train. Mr. Edison was perfectly aware of this when he announced his ideas to the public: ideas which were much ridiculed by engineers. By substituting the best stationary engines for the present wasteful locomotive, the power is converted in electric current at a cost, which, for power returned in the locomotive, is less than half what it is at present, after all losses from causes named above have been allowed. Not only is it of use on narrow guage lines and in mountainous districts, but it is just as capable of successful operation on trunk lines. This one source of power would be the agent by which all switches and signals are regulated day and night, and furnish the power for brakes and for lighting the cars and stations. In practice the electric stations would be about ten miles apart, operating five miles each way. The present locomotive has taken a car with thirty-one men up the grades at ten miles per hour, and has attained a speed of forty-five miles on the straight part of the line. The limit to the speed was simply fixed by the insecurity of the track.

C.L. Clarke.